

**ENVIS Centre on  
AVIAN ECOLOGY**

# BUCEROS

ENVIS Newsletter Vol. 19, No. 2, 2014



Supported by Ministry of Environment, Forests, and Climate Change, Government of India

## ABOUT ENVIS

ENVIS (Environmental Information System) is a network of subject-specific centres located in various institutions throughout India. The focal point of the present 66 ENVIS centres in India is at the Ministry of Environment, Forests and climate change, New Delhi, which further serves as the Regional Service Centre (RSC) for INFOTERRA, the global information network of the United Nations Environment Programme (UNEP) to cater to environment information needs in the South Asian sub-region. The primary objective of all ENVIS centres is to collect, collate, store and disseminate environment related information to various user groups, including researchers, policy planners, and decision makers.

The ENVIS Centre at the Bombay Natural History Society was set up in June 1996 to serve as a source of information on Avian Ecology.

### Objectives of the ENVIS Centre at BNHS

- ✍ To create a bibliographic database of published literature related to avian ecology study
- ✍ To publish and distribute *BUCEROS* newsletter on avian ecology to its members
- ✍ To create and upload databases on avian ecology on ENVIS website [www.bnhsenvis.nic.in](http://www.bnhsenvis.nic.in)
- ✍ To reply to queries related to birds



Lesser Flamingo *Phoeniconotus minor*  
Photograph: Pranit Gupte



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Rain Quail *Coturnix coromandelica*

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The background of the page is a collage of several images. At the top, there's a group of people in a field. Below that, a landscape with trees and a body of water. In the middle, a group of people, possibly researchers, are gathered around a table. At the bottom, there's a close-up of a bird, likely a vulture, perched on a branch.

## EDITORIAL

It is a well established fact that biodiversity is being threatened at the global level by anthropogenic activities. Researchers throughout the world have noticed changes in distribution patterns, migratory patterns, and breeding behaviour of birds. Scientists are trying to reveal the mystery of these changes with the help of cutting edge technological aids.

An exciting journey of two satellite-tagged Amur Falcons *Falco amurensis*, exploring their migratory route of around 22,000 km from Nagaland to South Africa, from South Africa to Mongolia, and back to Nagaland, is described in this issue for readers. We have also covered an article which describes the roosting behaviour of Amur Falcons during their migration through Pune district, Maharashtra.

We have tried to highlight the burning issue of the European Union's shocking decision to give a green signal to the use of diclofenac in cattle treatment. Diclofenac is a killer drug notorious for its impact on vultures. It was responsible for the drastic decline of vultures in the Indian subcontinent, beginning in the early 1990s. It took almost a decade for our scientists to establish experimental breeding of vultures, which would help to avert this catastrophe. Now the European Union is going down the same track, risking the loss of their vulture population by approving the use of diclofenac. Voices are being raised by the masses to oppose this decision.

In our Abstracts section, we have tried to highlight the efforts of researchers spending years in the field to collect scientific records. They reflect the true dedication of conservationists across the world, because of which the marvels of birdlife are being explored and conserved.

**Pratik P. Tambe**  
**Scientist-in-charge**

### ENVIS Participation in Student Conference on Conservation Science

The team of BNHS ENVIS Centre on Avian Ecology got an opportunity to attend the Student Conference on Conservation Science (SCCS) held at Bengaluru, Karnataka, India from September 25–28, 2014. Brochures and a banner were displayed at the event, to publicize the work and functioning of the ENVIS Centre. The staff interacted with more than 500 students and delegates from Asia, Africa, and other countries. ENVIS staff distributed 200 copies of the BUCEROS newsletter. More than 25 new members were added to the Centre's mailing list. The Conference helped the ENVIS staff to understand global issues on biodiversity and also gave us an opportunity to promote the activities of the Centre among the large number of people in the audience.



Nandkishor Dudhe

Participation of ENVIS staff in Who's Who conservation section of conference



### Organizational news

#### Perched on the precipice: India's vultures threatened by EU sale of killer drug

*Poisoned by cattle carcasses treated with diclofenac, India's vultures died by the millions in the 1990s. A captive breeding programme is helping to save the once-ubiquitous birds, but the very drug that drove India's vultures to the precipice of extinction has been given the green light in Italy and Spain.*

Driving through an idyllic piece of forest, passing a majestic fig tree, we reach the renowned Vulture Breeding station on a small field road. It is situated in Pinjore in the northern Indian state of Haryana at the Himalayan foothills. Dr. Vibhu Prakash has been expecting us and walks toward us from the gate. Working as an ornithologist and Deputy Director for the Bombay Natural History Society (BNHS), his knowledge of vultures of India is nearly unparalleled. Data from his doctoral thesis provided the first clear evidence for the decline of these majestic birds while the catastrophe was looming.

Three of the world's rarest vulture species are bred and raised at the station, which is led by Dr. Prakash, as part of a reintroduction programme. White-backed *Gyps bengalensis*, Indian *Gyps indicus*, and Slender-billed *Gyps tenuirostris* Vultures are all listed as Critically Endangered by the IUCN. However, in the 1980s they were still so common that India's ornithologists tended to pay them little heed during surveys, focusing instead on rarer species. The White-backed Vulture occurred by the millions and had been considered the most common vulture in the world. But in the past few decades it has declined by more than 99 percent, while Indian and Slender-billed Vultures declined by more than 97 percent.

The problem, it turned out, was a drug called diclofenac, which "kills the vultures in slightest concentrations", Dr. Prakash says. "They die painfully from renal failure."

The ingredient is used in a drug introduced to the Indian market as a painkiller and anti-inflammatory for livestock. However, it took years before diclofenac was identified as the cause of this precipitous decline, with a viral disease suspected at first.

When the cause was finally identified in 2004, conservationists instantly launched an emergency plan to save the vultures. Diclofenac was subsequently banned in veterinary medicine starting in 2006. However, while the drug is no longer available in large quantities, it is still sold for use in human medicine and, on occasion, illegally used to treat cattle. A slight rebound in remaining vulture populations is becoming apparent.

There are enormous numbers of cattle in India that, due to religious reasons, are usually not eaten by people. When they die, they are often left to lie where they fall, and their carcasses nourish an entire guild of scavengers. Once, when vultures were still common, up to 200 were observed gathering at one carcass.

#### **Diclofenac: livestock painkiller, vulture poison**

Vulture decline has brought with it other negative effects. Fewer vultures mean more resources for other scavengers; dogs experienced a population boom, raising fears of rabies. Without vultures, carcasses remain lying around for a longer time, presenting a sanitary risk for people and animals.

Today, because of their very low numbers, vultures are having a harder time gaining access to carcasses.

“When vultures were still common they chased the dogs away, today the dogs chase the vultures away,” said ornithologist Rajat Bhargava, who has

observed birds around his home near Delhi for decades. Without strength in numbers, vultures are now more often waiting until dogs finish their meals. Sometimes, when very few vultures occur at a carcass, even crows can chase them off.



Rajat Bhargava

Small numbers of vultures are unable to compete with dogs for carcasses

#### **Bone traders raised alarm**

The “work” done by the vultures once brought an important source of income to the poorest of rural people. When they found a carcass, bone traders would remove the skin and lay the body out for the birds to take the flesh and leave the bones neat and bare. The traders then collected the dried bones and sold them to factories that produce fertilizer and gelatin.

When the vultures disappeared, the traders or factory staff had to take on the extra job of removing the flesh, which lowered their total earnings. Because of their fading income, bone traders were in fact the first people who noticed and complained about the missing vultures. A local newspaper reported the issue, bringing it to the attention of India’s bird conservationists.

Vultures are extremely slow breeders and naturally very long-lived, which is why the conservation breeding programme is a pronouncedly long-term project. The vultures start breeding at five to six years of age and normally lay no more than one egg per year.

Chicks of India’s three vulture species are now being raised in Pinjore and at two smaller breeding stations run by BNHS, which is the Indian partner of the conservation organization BirdLife International. Five more breeding stations are run by the government.

Contact with humans is restricted whenever possible in order to increase chances for a successful reintroduction into the wild. Several aviaries have been established in the Pinjore breeding station for raising young vultures and also for the care of injured birds brought in from the wild. In three large flight aviaries, all around 30 m (100 feet) long, older juveniles and adult vultures have

space to train their huge wings. A robust synthetic net confines these large aviaries on the top. If all goes well, the young vultures will someday soar enormous distances while looking for carcasses in the wild.

In order to increase the number of offspring, workers encourage the breeding pairs at the station to lay a second egg by removing their first egg, which is then hatched in an incubator. However, it takes three weeks to lay a second egg.

The conservationists place video cameras to survey the nesting birds in the breeding station while avoiding disturbing them. As an added benefit, the cameras allow them to study the birds' breeding behaviour. Vultures are extremely caring parents and also very socially tolerant birds, according to Dr. Prakash. In one scene captured by the nest cameras, a mother vulture helps her chick hatch from its egg. Alerted by calling from within the egg, she gently peels away broken parts of the shell.

### **New danger for European vultures**

The banning of diclofenac in 2006 has been a huge boon for India's vultures. Indeed, a study published recently in *Philosophical Transactions of the Royal Society (B)* found that vulture death due to ingestion of contaminated meat fell by more than a third between 2005 and 2009.

However, the reason behind India's vulture catastrophe has apparently remained ignored by European policy. Last year, the European Union approved the use of diclofenac for cattle in Spain and Italy. About 80 percent of European vultures live in Spain and they are threatened by food shortage, amongst other issues. For this reason, Spain has loosened disposal regulations for livestock carcasses. Diclofenac may now become a deadly danger for European vultures, despite the fact that a vulture-safe alternative medication, Meloxicam, is also on the market.

Conservationists have rallied against the EU's decision, which allows the large-scale manufacture and use of diclofenac and other non-steroidal anti-inflammatory drugs known to be deadly to vultures. In response, the European Commission has asked the European Medicines Agency to assess the risk posed by the drug to Europe's scavenging raptors. They will present their findings later this month.

Conservationists worry the use of diclofenac in Europe may undermine conservation work in India.



"The biggest problem for us in India and Nepal is that it is very hard to ask for diclofenac to remain banned, and to only be sold in small vials so it can't be used for veterinary use, when it is licensed in Europe," said Jemima Parry-Jones from the UK-based International Centre for Birds of Prey, who is involved in the conservation project. "This cuts the ground out from under our feet."

To learn more about the problems facing India's vultures, visit Saving Asia's Vultures from Extinction (SAVE) and their petition to ban diclofenac in Europe.

Source : <http://news.mongabay.com/2014/1105-schattin-diclofenac-approved-in-europe-threatens-vultures.html#sthash.tDPsDAYy.dpuf>

India's vultures are examples of Old World vultures, which are not closely related to New World vultures. In fact, some scientists group the latter group with storks. Unlike New World vultures that are able to locate carcasses by their extraordinary sense of smell, Old World vultures find food by sight

## Migratory birds start arriving at Kodiakarai Sanctuary

With the onset of the north-east monsoon, thousands of migratory birds have started arriving at the Point Calimere Wildlife Sanctuary, popularly known as Kodiakarai Sanctuary, in Nagapattinam district.

Renowned ornithologist from Bombay Natural History Society Dr. S. Balachandran, who is camping at Kodiakarai, told PTI that a few thousands of birds, including gulls, flamingo, teal, Bar-tailed Godwit, Whiskered Terns, Blue-tailed Bee-eater, Redshank, Little Stint, Painted Stork, Blue Jay, egret, myna, drongo, curlew, sandpiper, and other varieties have been spotted in the sanctuary now.

BNHS had commenced an extensive research in the area and had taken up a 'ringing' exercise (fitting rings on the birds), he said.

"Those rings, which have satellite transmitters, help in tracking the movement of birds. The signals emitted through the satellite transmitters reveal information on the routes taken by them, time taken for the journey and the changes in their body condition," he said.

Since Nagapattinam district has been registering good rain during the past three weeks, Balachandran predicted considerable increase in the inflow of migratory birds in the coming days.

The wildlife department has tightened security to prevent poaching of birds in this area.

During the past few years, the sanctuary had been witnessing a steady decline in the number of winged visitors. The arrival of birds here depends largely on the monsoon. If the rainfall is too high or too low, the number goes down.

The Point Calimere Sanctuary, situated in a 20 sq. km area of dry evergreen forests, serves as the abode for a good population of blackbuck, antelopes, cheetah, feral horses, wild boars, and about 247 species of colourful birds. The forest area was declared as a wildlife sanctuary during 1967.

The lagoons in this area with their rich fish population attract thousands of migratory birds from countries as far as Siberia and other West Asian countries every year, providing a visual treat for tourists and ornithologists.

The birds visit the sanctuary during the latter part of October and stay up to February or March every year.

Source : [http://www.business-standard.com/article/pti-stories/migratory-birds-start-arriving-at-kodiakarai-sanctuary-114102100895\\_1.html](http://www.business-standard.com/article/pti-stories/migratory-birds-start-arriving-at-kodiakarai-sanctuary-114102100895_1.html)



Tuhina Katti

Rich habitat which attracts lots of migratory birds in Point Calimere Wildlife Sanctuary

## Two satellite-tagged Amur Falcons return to Nagaland

Two of the three satellite-tagged Amur Falcons, which were released from Nagaland on November 7, 2013, have returned to Nagaland. Naga and Pangti reached Doyang (Wokha) on October 29, 2014 after flying 22,000 km from Nagaland to South Africa, from South Africa to Mongolia, and back to Nagaland.

Wokha is still in South Africa, according to a press release from M. Lokeswara Rao, Principal Chief Conservator of Forests and Head of Forest Force, Nagaland. "As per the website, the bird is inactive. There may be two possibilities – the bird might have died, there is no movement of bird and the satellite tag of the bird might have come out of bird and fallen on the ground and the bird might be still alive flying without the satellite tag," he added.

Rao informed that Bernd Meyburg and his team has presented the first ever satellite tracking data for Amur Falcons. "This is the first time in the world the entire migration route of the satellite tagged Amur Falcons of Nagaland was satellite tracked from Nagaland to South Africa and from South Africa to Mongolia and to Nagaland, which gives clear scientific data of the entire migration route of the Amur Falcons," he said.

Reminding that the satellite tagging of the three Amur Falcons had put Nagaland on the world map, Rao stated, "People once hunters have helped in tagging of the birds. Today, Doyang once a silent area has become abuzz with activities."

The international team of ornithologists, according to Rao, counted over one million Amur Falcons entering a night roost near Wokha district. Nick Williams, Head of the Coordinating Unit of the Memorandum of Understanding on the Conservation of

Migratory Birds of Prey in Africa and Eurasia (Raptors MoU) said, "This is by far the largest and most spectacular roost of any species of falcon ever seen anywhere in the world, it represents a unique and irreplaceable part of the rich biodiversity of Nagaland."

In an email to the Forest Department, Nagaland, Williams expressed delight to see Naga and Pangti heading back "home" – the Falcon Capital of the World. He added, "The courageous and selfless decision by the villagers of Pangti to cease the harvest is something that must never be forgotten. We must all continue to strive to ensure that alternative sources of income are generated and maintained to ensure that Nagaland will always welcome the Amur Falcons in the future."

Source :

<http://www.morungexpress.com/local/124024.html>



A pair of Amur Falcon

Asad R. Rahmani

### Early winter surprise at Okhla Bird Sanctuary

The Okhla Bird Sanctuary, which has been in the news since the beginning of the year due to a plea for restricting construction activity in the surrounding areas, has started receiving winter migratory ducks much earlier than anticipated.

According to environmentalist and ecologist T. K. Roy, who has been monitoring the movement of migratory birds across the country, smaller flocks of winter migratory birds have arrived at the bird sanctuary this year.

Most of them have descended right in the middle of the wetland habitat, where disturbance from the surroundings is minimal.

Dr. Roy said the birds that have already arrived include the Northern Shoveller, Common Pochard, Tufted Duck, Eurasian Wigeon, Common Teal, and Gadwall.

**Northern Shoveller:** This migratory duck breeds in northern Europe and north Asia. During winter, it migrates to southern Europe, Africa, North America and South Asia, including India. A flock of 40 such birds has arrived at the Okhla sanctuary.

**Common Pochard:** This diving duck breeds in northern Europe and North Asia. It migrates to southern and western Europe and the northern part of Southeast and East Asia and South Asia during winter.

**Tufted Duck:** This migratory diving duck breeds in northern Europe and Asia, and migrates to southern and western Europe, and Southeast and South Asia, including India, in winter. A small mixed flock of 20 Common Pochard and Tufted Duck has descended upon the sanctuary.

**Eurasian Wigeon:** This widespread common dabbling duck breeds in northern Europe and Asia, and migrates in winter to northern, Southeast, and South Asia. A small flock of 20 Eurasian Wigeon have set foot at Okhla.

**Common Teal:** This common winter migratory duck breeds in northern Europe and North Asia, and migrates in winter to southern Europe, and Southeast and South Asia. About 40 Common Teal have already made Okhla sanctuary their winter home.

**Gadwall:** It is a common duck that breeds in northern Europe, central North America and north Asia, and migrates in winter to Central America, northern East, Southeast and South Asia. About 20 birds of this species have arrived at the sanctuary.

Source : <http://www.thehindu.com/news/cities/Delhi/early-winter-surprise-at-okhla-bird-sanctuary/article6518388.ece>



Paridhi Jain

Okhla Bird Sanctuary

## 12 lakh migratory birds flock to Kashmir Valley

Over 12 lakh migratory birds from Central Asia, Eastern Europe, and Japan have flocked to Kashmir, giving a vibrant look to the wetlands and water bodies in the Valley. “Our conservative estimate is that there are over 12 lakh migratory birds in various wetlands and water bodies of Kashmir at present,” Wildlife Warden Mohammad Maqbool Baba told PTI.

Brahminy Duck, Tufted Duck, Gadwall, Garganey, Greylag Goose, Mallard, Common Merganser, Northern Pintail, Common Pochard, Ferruginous Pochard, Red-Crested Pochard, Ruddy Shelduck, Northern Shoveller, Common Teal, and Eurasian Wigeon are some of the winged visitors sighted in the wetlands of Kashmir.

The birds which feed on insects, worms, and fish in these water bodies present a beautiful hue, changing the colour of the Valley landscape amid the onset of gloomy winter.

These birds start a long distance flight from several Asian regions like Siberia, China, and Japan in the month of October due to freezing temperatures, which makes food scarce for them in their natural habitats, Baba said.

The birds return to their habitats by the end of January, he added. The number of birds arriving this year is a record as last year only eight lakh winged visitors came to the Valley in search of food. The official said the numbers will start dwindling in the next three weeks as the birds migrate further south to wetlands in Punjab, Haryana, and Uttar Pradesh, in view of dropping temperatures in the Valley.

Source : <http://www.hindustantimes.com/punjab/jandk/12-lakh-migratory-birds-flock-to-kashmir-valley/article1-1160478.aspx>



## New data about endangered Marsh Harrier distribution in Europe

The use of ringing recoveries, a conventional method used to study bird migration in combination with more modern techniques such as species distribution modelling and stable isotope analysis, is useful to understand better bird distribution patterns and origin considering place and time of the year.

This is the main conclusion of the papers published in the *Journal of Ornithology and Diversity and Distributions* by a research group led by Dr. Santi Mañosa and Dr. Laura Cardador, experts from the Department of Animal Biology and the Biodiversity Research Institute of the University of Barcelona (IRBio), and members of the Consolidated Research Group Biology and Ecology of Tetrapoda: Conservation Applications.

## An endangered raptor species since the 1980

According to Santi Mañosa, “In the Iberian Peninsula, Marsh Harrier nesting population has increased in the last three decades. It has recovered from the dramatic situation it experienced in the eighties, as a consequence of the use of organochloride insecticides, wetland drainage and hunting.” In winter, population increases due to migrant harriers coming from central and northern latitudinal Europe.

These studies analyze the factors that constrain Marsh Harrier distribution, population (breeding and wintering) superposition, the origin of wintering birds and the requirements of each population fraction. To give an answer to all these questions, traditional techniques (ring recoveries) and more modern ones (species distribution modelling and stable isotope analyses) were combined.

All three are fundamental to obtain as much information as possible from the scarce data about birds that are available.

### **Marsh Harrier population constraint goes beyond environmental factors**

“Results indicate that current Marsh Harrier distribution in the Iberian Peninsula is not only limited by environmental variables during the breeding season,” explains researcher Laura Cardador. “There are other factors that lead individuals to join other groups (conspecific attraction),” she adds. “These factors”, she affirms, “slow down the process of expansion and explain, to some extent, species absence in certain wet areas which are apparently suitable for birds.”

On the contrary, in winter, distribution is exclusively constrained by climate and environmental factors because migrant harriers occupy preferably the areas with better climate conditions, independently of localization. Particularly, they occupy some eastern Mediterranean coastal areas where the species has not bred for more than a decade. “Data obtained from ring recoveries and stable isotope analyses confirm that most Marsh Harriers wintering in the Iberian Peninsula are migrant birds from central and northern Europe and only some of them are resident birds. The geographical origin of individuals varies according to the wintering area,” explain the authors.

Results prove that bird populations that inhabit the Iberian Peninsula during the wintering season are exposed to different ecological conditions depending on their origin. These studies contribute to understand better why different populations which seem to be exposed to the same conditions at their origin show different trends and conservation status due only to their segregation at wintering areas.

Moreover, both studies also prove that ring recoveries continue to be an effective tool to analyze the information obtained by using more modern techniques. According to Santi Mañosa and Laura Cardador, “In short, this multidisciplinary approach enables us to get a more integrated view of ecology and bird conservation problems in Europe.”

Source: The above story is based on materials provided by **University of Barcelona**.

### **Journal References:**

1. Cardador, Laura, Sardà-Palomera, Francesc, Carrete, Martina, and Mañosa, Santi (2014) Incorporating spatial constraints in different periods of the annual cycle improves species distribution model performance for a highly mobile bird species. *Diversity and Distributions* 20(5): 515 DOI: 10.1111/ddi.12156
2. Cardador, Laura, Navarro, Joan, Forero, Manuela G., Hobson, Keith A., and Mañosa, Santi (2014) Breeding origin and spatial distribution of migrant and resident harriers in a Mediterranean wintering area: insights from isotopic analyses, ring recoveries and species distribution modelling. *Journal of Ornithology*; DOI: 10.1007/s10336-014-1122-0

### **Source:**

[http://www.sciencedaily.com/releases/2014/10/141017095346.htm?utm\\_source=feedburner&utm\\_medium=email&utm\\_campaign=Feed%3A+sciencedaily%2Fplants\\_animals%2Fbirds+%28Birds+News+---+ScienceDaily%29](http://www.sciencedaily.com/releases/2014/10/141017095346.htm?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+sciencedaily%2Fplants_animals%2Fbirds+%28Birds+News+---+ScienceDaily%29)

## Birds of Darewadi Learning Centre and Watershed

Girish Jathar, M.Sc., Ph.D.

Darewadi in Sangamner *taluk*, Ahmednagar district of Maharashtra is one of the villages famous for its association with the prestigious Indo-German Watershed Programme. This village lies in the rain shadow region of Maharashtra and was one of the first to host a watershed development project of the Watershed Organization Trust (WOTR). It has always been drought prone, but because of heavy grazing and deforestation the situation went from bad to worse in the 1980s. These factors led to soil degradation and erosion, which forced villagers to cultivate only pearl millet or pulses in the rainy season. For the rest of the year, the villagers were forced to migrate to other places in search of work as farm labourers. There were various social conflicts and disputes in the village, and substance abuse among the villagers. However, the Indo German Watershed Programme came to Darewadi village in 1996 and helped the villagers to return from their hadaan conditions and stand strong on their feet. Now the village has changed into an oasis. The hillsides have turned into scrubland and thickets of trees, and the fallow land bears healthy crops. WOTR has developed an innovative concept for working with villages that is called *Participatory Watershed Management*. This has helped people to restore the degraded ecosystem. WOTR set up a Learning Centre in Darewadi in 2000, as this village offers an ideal location for conducting training, giving the trainees firsthand experience of the field and its people, thus fostering understanding and learning about various aspects of watershed development. Darewadi lies in typical dry grassland habitat where the annual rainfall is barely 300–400 mm, the majority of which is received during the south-west monsoon between June to September. The total area of the watershed is 1,535.24 ha, of which 306.53 ha comes under Forest land, 147.59 ha under revenue, 17.69 ha is community land and 1,063.43 is private land. There are few tree species found here, some of them have been part of afforestation programme. The valleys surrounding the village have indigenous tree species such as *Azadirachta indica*, *Acacia catechuoides*, *Butea monosperma*, and *Zizyphus* sp., whereas the plains are dominated by various grass species such as *Cynodon* sp., *Aristida* sp., *Heteropogon* sp., and *Eragrostis* sp. At some places *Euphorbia* shrubs dot the landscape, but they are restricted to the roadsides. Interestingly, *Euphorbia* shows an association with *Lantana camara*. In recent years, it has been observed that *Prosopis* sp. is rapidly invading this landscape.

The habitat around the learning centre is interesting. It lies amidst the dry grassland and is lush green with dominant plant species such as *Eucalyptus*, *Leucaena leucocephala*, *Azadirachta indica*, *Annona squamosa*, *Moringa oleifera*, and *Caesalpinia pulcherrima*. Though many of these are exotic, they provide habitats for many birds and butterflies. Broadly, the land around the Learning Centre shows four distinct habitats, namely grassland, agricultural fields, wetland, and forest. This unique assemblage of habitats attracts nearly 123 bird species. Among them, 57 species are resident which can be seen throughout the year, 32 species are migrants, 22 could be local migrant as they are seen periodically, and five species are vagrant, seen only once.



Darewadi Learning Centre

Mohan Dhuldhare



Varied habitat around the Darewadi Learning Centre from wetland to scrub forest attracts large variety of birds around the Centre

The avifauna of the Centre was studied over a period of four years from September 2010 till date. More than 30 visits covering all the seasons were made during this period. These visits ranged from a single day to 20 days at a stretch, and provided a good opportunity to study the avifauna of the Centre as well as the village watershed. The most notable among the avifauna was Amur Falcon *Falco amurensis*.

### Amur Falcon at Darewadi Learning Centre

On November 23, 2010, I was at Darewadi Learning Centre at about 4:30 pm, when suddenly a flock of birds flew overhead. The birds appeared strange, all of them were raptors (birds of prey) and were in huge numbers. Though it is very unusual to see flock of birds of prey, after careful observation I found that they were Amur Falcon.

The flock had about 50 falcons. At first glance, it appeared that about 30% birds were juveniles and sub-adults, a few males and many females. They chose a plantation in the Centre to settle down to roost. I took my binoculars and note pad, and decided to chase them to see their activities. At about 4:45 pm, a flock of 20–30 Jungle Crows started chasing them away from this grove because it was a permanent roosting site of the Jungle Crows.

From 4:45 to 5:25 pm, the Jungle Crows chased them about 3 km to a hilly region. I followed them until I could observe them flying. However, the falcons returned after some time and started heading towards the Centre. At about 5:30 pm, the falcons started settling down in the plantation despite the crows chasing and harassing them. The entire area became chaotic for about 10 minutes, but the falcons were determined to roost in the plantation. At 5:45 pm, most of the falcons were roosting on trees of *Leucaena leucocephala* and *Peltophorum*. Before settling on the trees they made squeaking calls which could be an alarm call or pre-roost call. Afterwards there were a few bouts of fighting and chasing between the crows and the falcons, but later both settled down.

On the morning of November 24, at 5:45 am, I went to the roost but could not see falcons as it was still dark. At about 6:15 am, I heard the squeaking calls of the falcons. At 6:30 am, the crows started chasing the falcons again. The falcons flew north-west of the Centre, while the crows kept them chasing for about a kilometer. The falcons were not seen again in subsequent years. Therefore, this could be a random visit of the flock to Darewadi Learning Centre.

### Epilogue

Anthropogenic changes in landscape sometimes prove beneficial to wildlife. The Darewadi watershed programme and the Learning Centre are one such example. There are no immediate threats to the birds in this area. However, in recent years the farmers around this area have started using pesticides. This may affect the bird diversity and population in the foreseeable future. Secondly, due to consistent droughts in the region, the wetlands have dried up and water is available only for a month or two,



Agricultural land near Darewadi Learning Centre: habitat for diverse bird species

leading to a negative trend in the populations of wetland bird species. Hunting wild birds is rare in the area and limited to visits of some nomadic tribes. Factors such as changing weather pattern, changing land use, and changing agricultural practices might affect this rich avifauna.

The Watershed Organization Trust is taking concrete steps towards conservation of avifauna around the Centre. In order to create a refuge, we have planned to phase out exotic species and replace them with bird-friendly indigenous trees. However, this will be done carefully without altering the existing landscape significantly. Furthermore, nest boxes will be installed and artificial water holes created. Also, in order to

make the environment free of chemicals, farmers are being educated and made aware of the fallout from excessive utilization of pesticides. All these efforts might bring a better future to the winged denizens of Darewadi watershed.

#### Checklist of the birds seen at Darewadi

Sr.No	English Name	Scientific Name	Status
1	Little Grebe	<i>Tachybaptus ruficollis</i>	LM
2	Little Cormorant	<i>Phalacrocorax niger</i>	LM
3	Little Egret	<i>Egretta garzetta</i>	LM
4	Grey Heron	<i>Ardea cinerea</i>	M
5	Purple Heron	<i>Ardea purpurea</i>	M
6	Eastern Cattle Egret	<i>Bubulcus coromandus</i>	R
7	Indian Pond-Heron	<i>Ardeola grayii</i>	R
8	Indian Black Ibis	<i>Pseudibis papillosa</i>	R
9	Lesser Whistling-Duck	<i>Dendrocygna javanica</i>	LM
10	Ruddy Shelduck	<i>Tadorna ferruginea</i>	M
11	Indian Spot-billed Duck	<i>Anas poecilorhyncha</i>	LM
12	Black-winged Kite	<i>Elanus caeruleus</i>	R
13	Black Kite	<i>Milvus migrans migrans/govinda</i>	LM
14	Egyptian Vulture	<i>Neophron percnopterus</i>	V
15	Pallid Harrier	<i>Circus macrourus</i>	M
16	Shikra	<i>Accipiter badius</i>	R
17	Eurasian Sparrowhawk	<i>Accipiter nisus nisosimilis</i>	M
18	Booted Eagle	<i>Hieraaetus pennatus</i>	M
19	Common Kestrel	<i>Falco tinnunculus</i>	M
20	Amur Falcon	<i>Falco amurensis</i>	V
21	Painted Francolin	<i>Francolinus pictus</i>	LM
22	Grey Francolin	<i>Francolinus pondicerianus</i>	R
23	Rain Quail	<i>Coturnix coromandelica</i>	R
24	Indian Peafowl	<i>Pavo cristatus</i>	R
25	Yellow-legged Buttonquail	<i>Turnix tanki</i>	R
26	Indian Stone-Curlew	<i>Burhinus indicus</i>	R
27	Little Ringed Plover	<i>Charadrius dubius</i>	M
28	Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>	LM
29	Red-wattled Lapwing	<i>Vanellus indicus</i>	R
30	Indian Courser	<i>Cursorius coromandelicus</i>	LM

31	Wood Sandpiper	<i>Tringa glareola</i>	M
32	Common Sandpiper	<i>Actitis hypoleucos</i>	M
33	River Tern	<i>Sterna aurantia</i>	M
34	Rock Pigeon	<i>Columba livia</i>	R
35	Laughing Dove	<i>Streptopelia senegalensis</i>	R
36	Eurasian Collared-Dove	<i>Streptopelia decaocto</i>	R
37	Rose-ringed Parakeet	<i>Psittacula krameri</i>	R
38	Jacobin Cuckoo	<i>Clamator jacobinus</i>	M
39	Common Hawk-Cuckoo	<i>Hierococcyx varius</i>	M
40	Grey-bellied Cuckoo	<i>Cacomantis passerinus</i>	M
41	Asian Koel	<i>Eudynamis scolopacea</i>	R
42	Greater Coucal	<i>Centropus [sinensis] parroti</i>	R
43	Indian Eagle-Owl	<i>Bubo bengalensis</i>	R
44	Spotted Owlet	<i>Athene brama</i>	R
45	Indian Little Nightjar	<i>Caprimulgus asiaticus</i>	R
46	Savanna Nightjar	<i>Caprimulgus affinis</i>	M
47	Little Swift	<i>Apus affinis</i>	R
48	Lesser Pied Kingfisher	<i>Ceryle rudis</i>	LM
49	Common Kingfisher	<i>Alcedo atthis</i>	LM
50	White-throated Kingfisher	<i>Halcyon smyrnensis</i>	R
51	Little Green Bee-eater	<i>Merops orientalis</i>	LM
52	Indian Roller	<i>Coracias benghalensis benghalensis</i>	LM
53	Common Hoopoe	<i>Upupa epops ceylonensis</i>	R
54	Indian Grey Hornbill	<i>Ocyrceros birostris</i>	V
55	Coppersmith Barbet	<i>Xantholaema haemacephala</i>	R
56	Yellow-fronted Pied Woodpecker	<i>Dendrocopos mahrattensis</i>	R
57	Singing Bushlark	<i>Mirafra cantillans</i>	LM
58	Ashy-crowned Finch-Lark	<i>Eremopterix griseus</i>	R
59	Rufous-tailed Lark	<i>Ammomanes phoenicura</i>	R
60	Greater Short-toed Lark	<i>Calandrella brachydactyla dukhunensis</i>	M
61	Grey-throated Sand-Martin	<i>Riparia chinensis</i>	M
62	Barn Swallow	<i>Hirundo rustica</i>	M
63	Wire-tailed Swallow	<i>Hirundo smithii</i>	LM
64	Red-rumped Swallow	<i>Hirundo daurica</i>	LM
65	Rufous-tailed Shrike	<i>Lanius isabellinus</i>	M
66	Bay-backed Shrike	<i>Lanius vittatus</i>	R
67	'Rufous-backed' Long-tailed Shrike	<i>Lanius schach erythronotus</i>	M
68	Great Grey Shrike	<i>Lanius excubitor lahtora</i>	M
69	Rosy Starling	<i>Pastor roseus</i>	M
70	Common Myna	<i>Acridotheres tristis</i>	R
71	Jungle Myna	<i>Acridotheres fuscus</i>	R
72	House Crow	<i>Corvus splendens</i>	R
73	Indian Jungle Crow	<i>Corvus [macrorhynchos] culminatus</i>	R
74	Indian Golden Oriole	<i>Oriolus kundoo</i>	LM
75	Small Minivet	<i>Pericrocotus cinnamomeus</i>	R
76	White-spotted Fantail	<i>Rhipidura albogularis</i>	R
77	Black Drongo	<i>Edolius macrocercus</i>	LM
78	Asian Paradise Flycatcher	<i>Terpsiphone paradisi</i>	V
79	Common Iora	<i>Aegithina tiphia</i>	R

80	Common Woodshrike	<i>Tephrodornis pondicerianus</i>	V
81	Red-vented Bulbul	<i>Pycnonotus cafer</i>	R
82	Zitting Cisticola	<i>Cisticola juncidis</i>	R
83	Grey-breasted Prinia	<i>Prinia hodgsonii</i>	R
84	Ashy Prinia	<i>Prinia socialis</i>	R
85	Plain Prinia	<i>Prinia inornata</i>	R
86	Blyth's Reed-Warbler	<i>Acrocephalus dumetorum</i>	M
87	Indian Reed-Warbler	<i>Acrocephalus [stentoreus] brunnescens</i>	M
88	Booted Warbler	<i>Iduna caligata</i>	M
89	Common Tailorbird	<i>Orthotomus sutorius</i>	R
90	Siberian Chiffchaff	<i>Phylloscopus [collybita] tristis</i>	M
91	Sulphur-bellied Warbler	<i>Phylloscopus griseolus</i>	M
92	Hume's Leaf-Warbler	<i>Phylloscopus humei</i>	M
93	Greenish Warbler	<i>Phylloscopus trochiloides viridanus</i>	M
94	Tawny-bellied Babbler	<i>Dumetia hyperythra</i>	LM
95	Common Babbler	<i>Turdoides caudata</i>	R
96	Large Grey Babbler	<i>Turdoides malcolmi</i>	R
97	Lesser Whitethroat	<i>Sylvia curruca halimodendri</i>	M
98	Red-breasted Flycatcher	<i>Ficedula parva</i>	M
99	Oriental Magpie-Robin	<i>Copsychus saularis</i>	R
100	Indian Black Robin	<i>Copsychus fulicatus</i>	R
101	Black Redstart	<i>Phoenicurus ochruros rufiventris</i>	M
102	Siberian Stonechat	<i>Saxicola maurus maurus</i>	M
103	Pied Bushchat	<i>Saxicola caprata</i>	R
104	Cinereous Tit	<i>Parus cinereus</i>	R
105	Thick-billed Flowerpecker	<i>Pachyglossa agile</i>	R
106	Pale-billed Flowerpecker	<i>Dicaeum erythrorhynchos</i>	R
107	Purple-rumped Sunbird	<i>Leptocoma zeylonica</i>	R
108	Purple Sunbird	<i>Cinnyris asiaticus</i>	R
109	Oriental White-eye	<i>Zosterops palpebrosus</i>	R
110	Common Rosefinch	<i>Carpodacus erythrinus</i>	M
111	Crested Bunting	<i>Emberiza lathami</i>	R
112	Grey-necked Bunting	<i>Emberiza buchanani</i>	M
113	House Sparrow	<i>Passer domesticus</i>	R
114	Yellow-throated Sparrow	<i>Petronia xanthocollis</i>	LM
115	White Wagtail	<i>Motacilla alba</i>	M
116	White-browed Wagtail	<i>Motacilla maderaspatensis</i>	LM
117	Grey Wagtail	<i>Motacilla cinerea</i>	M
118	Paddyfield Pipit	<i>Anthus rufulus</i>	M
119	Tree Pipit	<i>Anthus trivialis</i>	M
120	Indian Baya Weaver	<i>Ploceus philippinus philippinus</i>	R
121	Red Avadavat	<i>Amandava amandava</i>	LM
122	Indian Silverbill	<i>Euodice malabarica</i>	R
123	Scaly-breasted Munia	<i>Lonchura punctulata</i>	R

**Status-** LM = Local migrant, M = Migrant, R = Resident, V = vagrant

### The birds of Sangli district, Maharashtra, India

Tuljapurkar, V.B., V.R. Bhagwat & G.A. Jathar

Surveys were undertaken over a period of 20 years to document the birds of Sangli district, which included 430 field visits from 1985. The surveys resulted in a checklist of 297 bird species for the district, which included 191 resident, 77 winter migrants, 9 local migrants, 4 breeding migrants, 3 vagrant bird species, 3 resident as well as migrant, 1 passage migrant and status of 9 could not be determined. There were 5 threatened and 19 endemic species amongst all the avifauna. The information obtained on the birds of the district from this survey is compared with records of Butler (1881).

**Keywords:** Sangli district, Birds, Deccan Plateau, Western Ghats

**J. Bombay Nat. Hist. Soc. (2013) 110(3): 172–186.**

### Diet of rural breeding Barn Owl *Tyto alba* (Scopoli, 1769) in Madurai, Southern India

Ali, A.M.S. & R. Santhanakrishnan

Diet composition during avian breeding seasons is a critical part of reproduction performance. A study was conducted to understand the prey composition of Barn Owls *Tyto alba* during the breeding season in rural areas of Madurai, southern India. Analysis of 593 regurgitated pellets at two different nest-sites revealed the presence of 624 prey specimens from 10 identified and one unidentified prey types. At both nest-sites, dominant prey group were small mammals which comprised 92.3% and 95.5%, respectively. At Site-A, Barn Owls frequently fed on *Bandicota bengalensis* (25.2%), whereas *Suncus murinus* (31.1%) was the most frequent prey item at Site-B. *Rattus rattus* was the second dominant prey and key prey species in terms of biomass consumption at both nest-sites. A noticeable difference was recorded in mean body weight of small mammal prey: 32.1% of prey were 40.0–59.9 g at Site-A, and 31.3% of preys were 20.0–39.9 g at Site-B.

**Keywords:** Barn Owl, breeding diet, small mammals, southern India

**Journal of Threatened Taxa (2014) 6(9): 6204–6213.**

### Protection of the White-nest Swiftlet *Aerodramus fuciphagus* in the Andaman Island, India: an assessment

Manchi, S. and R. Sankaran

International trade of swiftlet nests has affected wild populations of Edible-nest Swiftlets throughout their range. The White-nest Swiftlet *Aerodramus fuciphagus* of the Andaman and Nicobar Islands lost 80% of its population in the 1990s. Conservation efforts for the species were initiated in 2000, with the active involvement of former nest collectors. To measure the efficacy of protection measures we collected data on the swiftlet, using the nest count method. We monitored annual breeding populations in 28 protected caves on Chalis-ek and one on Interview Island during 2000–2008, and in 168 unprotected caves on Baratang and Interview Islands during February–April 2008. The swiftlet population in protected caves increased by 39%, whereas it declined by 74% in unprotected caves. Nearly 61% of the 152 caves on Baratang Island were abandoned by the swiftlet during 1997–2008. This study highlights the importance of extending protection to the unprotected caves on the Andaman and Nicobar Islands.

**Keywords:** *Aerodramus fuciphagus*, Andaman and Nicobar Islands, cave, Edible-nest Swiftlet, livelihood generation, nest, participatory conservation, sustainable harvesting

**Oryx (2014) 48(2): 213–217.**

## User Forum

Different facilities for users on [www.bnhsenvs.nic.in](http://www.bnhsenvs.nic.in) website are as follows:

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- ✦ Users can search for information from the many databases developed by the Centre. Databases include Endemic birds of India, Threatened birds of India, Important Bird Areas (IBAs), Birds in CITES, Marine birds of India, and others.
- ✦ List of other ENVIS Centres on various subject areas for navigating through information on different subjects related to the environment.
- ✦ Link to the websites and journals pertaining to Avian Ecology are available.
- ✦ Kid's Centre aimed towards school-going children provides interesting facts on birds.
- ✦ All issues of BUCEROS, the Centre's newsletter, are available for download in PDF format.
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- ✦ Glossary has more than 300 ornithological terms explained.
- ✦ Online query facility for users to drop a query to us.
- ✦ Contacts of eminent experts in ornithological studies have been given.

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Eurasian Spoonbill *Platalea leucorodia*  
Photograph: Parveen Shaikh

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BUCEROS is an ENVIS (Environmental Information System) newsletter published thrice a year by the ENVIS Centre at the BNHS, sponsored by the Ministry of Environment and Forests, New Delhi.

The Centre collects, collates, stores and disseminates information on Avian Ecology.

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Printed by Parth Enterprise, Goregaon, Mumbai - 400063  
Published by the Honorary Secretary for the Bombay Natural History Society, Hornbill House, Shaheed Bhagat Singh Road, Mumbai 400 001.